Skin microbe diversity can vary with forest type and habitat in Brazilian frogs

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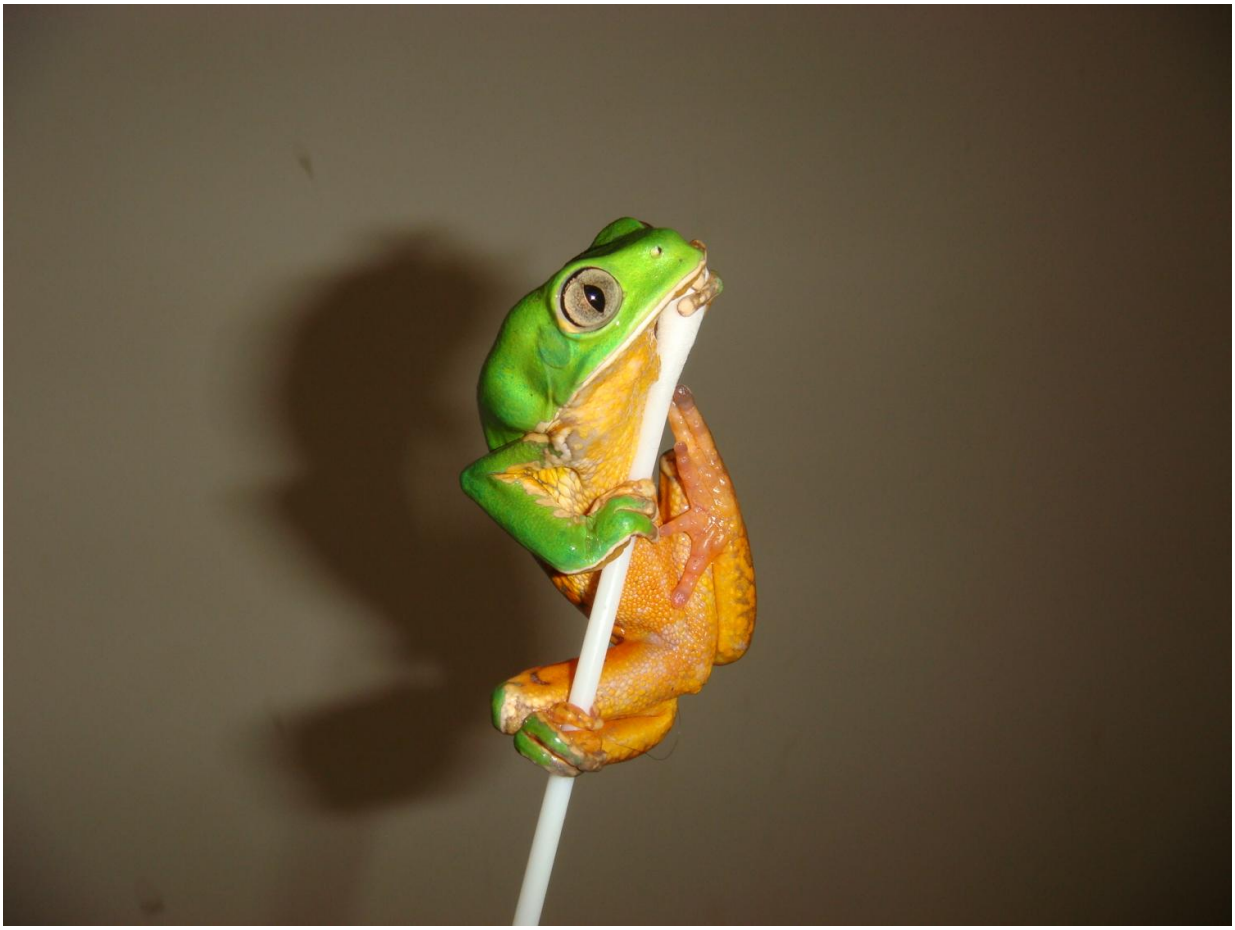

The diversity of microbes on the skin of frog species in Brazil's Atlantic Forest can vary with habitat. Credit: Ananda Brito

The diversity of microbes on the skin of frog species in Brazil's Atlantic Forest can vary with habitat, according to a study published July 5, 2017 in the open-access journal *PLOS ONE* by Ananda Brito de Assis from University of São Paulo, Brazil, and colleagues.

Skin bacteria can help protect amphibians: some produce antimicrobial compounds that inhibit pathogens. The composition of microbes on frog skin can reflect the environment, and environmental conditions—including solar radiation and temperature regimes—differ between continuous and fragmented forests. To see if forest type affects skin bacteria on frogs, Assis and colleagues collected microbe samples from four frog species in both continuous and fragmented Atlantic Forest in Brazil. The researchers cultured bacteria from 188 frogs, and then assessed the cultures for diversity and antimicrobial potential.

The researchers found that for one frog (Proceratophrys boiei), microbe diversity was more than twice as high in continuous forest than in fragments (149 vs. 61 morphotypes, respectively), and its bacterial density varied between these forests. However, microbe diversity did not vary by forest type in the other three species, suggesting that variation was instead due to factors intrinsic to individual species and their habitats.

In addition, the researchers detected antimicrobial activity in 27 bacterial morphotypes across the four frog species. Again, the leaf litter-dwelling P. boiei had the greatest number of antimicrobial morphotypes, presumably reflecting its exposure to soil bacteria species, many of which produce antibiotics.

More information: Assis ABd, Barreto CC, Navas CA (2017) Skin microbiota in frogs from the Brazilian Atlantic Forest: Species, forest type, and potential against pathogens. *PLoS ONE* 12(7): e0179628. doi.org/10.1371/journal.pone.0179628